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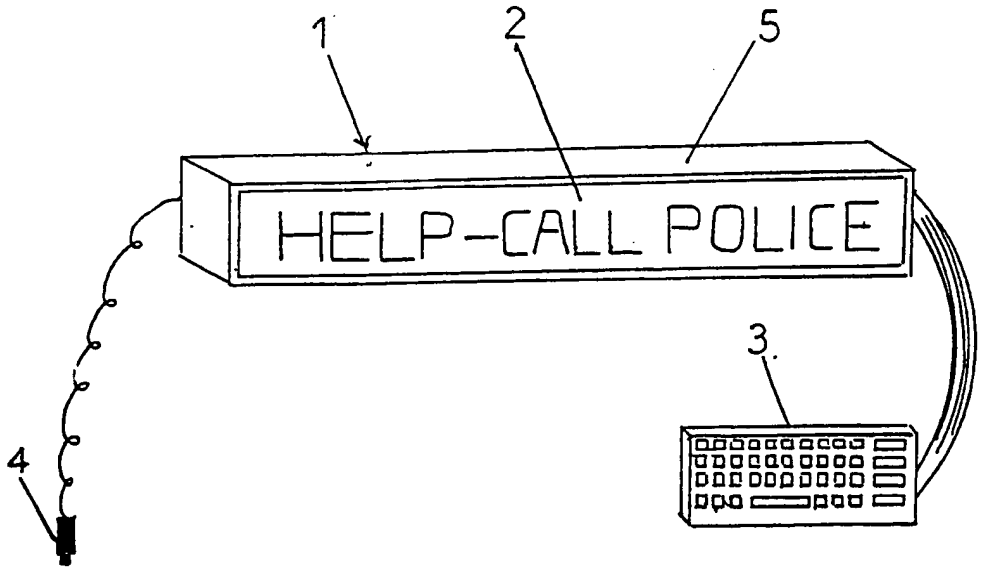
(54) Vehicle display device

(57) A display device intended for use within the rear windscreen of a motor car comprises a dot-matrix LED display unit 2 arranged to display an illuminated message visible to passing vehicles. The messages may be pre-recorded in a memory within the device, or may be entered from a keypad, and may contain moving or flashing components. The device may utilise solar power, or it may have a plug 4 for insertion in the cigar-lighter socket of the car, and may include a re-chargeable battery, or it may be permanently connected to the electrical circuits of the car.



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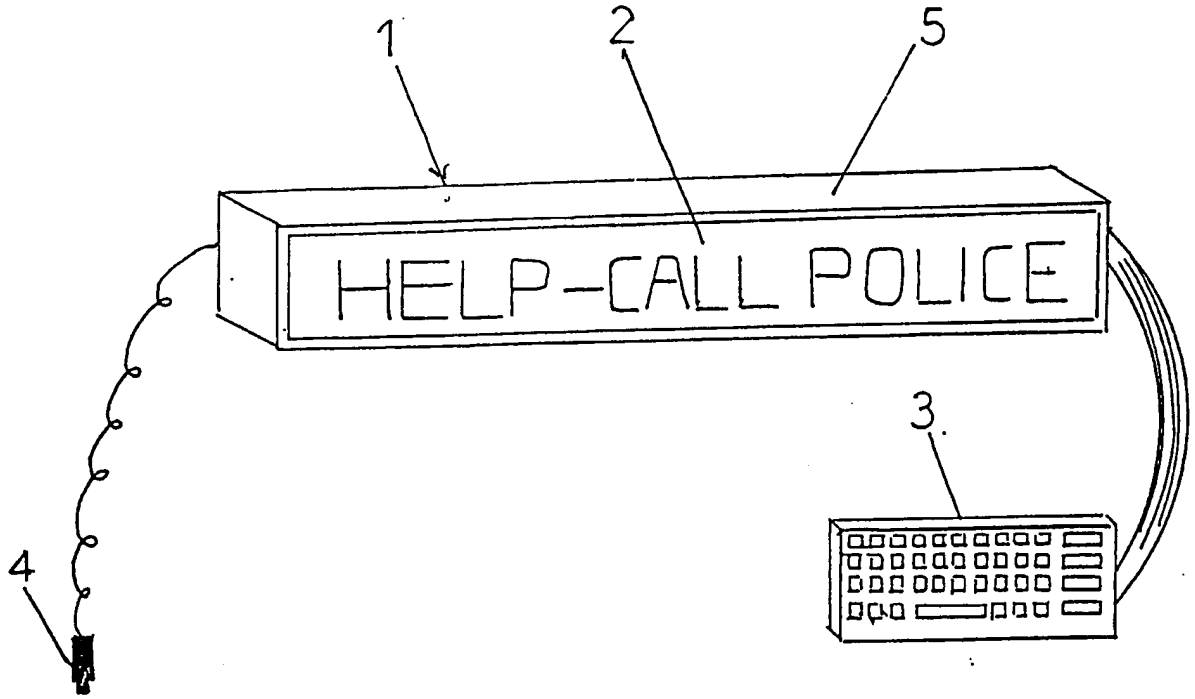
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2
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HELP-CALL POLICE
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4

VEHICLE DISPLAY DEVICE

The invention relates to display devices for use in vehicles.

From time to time a need may arise for the driver of a vehicle to convey an urgent message to the drivers of neighbouring vehicles. He may, for example, be suddenly taken ill, or his vehicle may be disabled, or it may be unable, for some reason, to manoeuvre, or to travel at normal traffic speeds. An object of the present invention is to provide a display device for use in such circumstances.

The invention, which is defined in the appended claims, makes use of a dot-matrix LED display unit placed in the back windscreen of a car to display an appropriate message. The brightness of the individual diodes of the display unit draws attention to the message, and this is rendered even more effective if the displayed message contains one or more moving or flashing components. The whole message may be arranged to move, for example from right to left in a cycle, or to be scrolled up or down, thereby enabling a message to be displayed which is longer than the physical length of the display unit. Sideways movement in one or the other direction is also appropriate for displaying directional arrows.

The device may be arranged to display any one of a number of pre-recorded messages, the desired message being selected by means of a selector switch or by push-buttons. Alternatively, or preferably in addition, the device may include a keypad by means of which the user may insert his own message into the device, either for use on a single occasion, or to be recorded in the memory for future use whenever the need may arise.

The invention will be further described with reference to the accompanying figure, which is a diagrammatic view of one embodiment.

Referring to this figure, the device comprises a main unit 1 in the form of an elongated rectangular box having on its front a display panel 2 comprising a matrix of LEDs. The shape and size of this unit are such that it can conveniently be positioned on the back shelf of a saloon car with the display panel visible through the rear windscreen. Suitable overall dimensions for the unit are, for example, 75cm long, 7cm high, and 12 cm deep, and this would allow the display of some 16 characters, each about 5cm high, at a time.

Preferably the LEDs give an orange or red light, such colours having high visibility and being generally associated with danger.

Within the unit 1 are electronic circuits including a data memory, a microprocessor, character-generating means whereby data stored in the memory may be displayed on the display panel 2 under the control of the microprocessor, an interface for an external keypad 3, and a power supply circuit. The power supply circuit may receive power from disposable batteries, or via a lead provided with a plug 4 for insertion into the cigar-lighter socket of the car, in which case it may include a rechargeable battery for operating the device, so that the device need only be plugged into the car supply occasionally for re-charging. A separate small long-life battery may be provided where necessary to refresh the memory so as to ensure that stored information is not lost.

In an alternative arrangement the device may be powered by solar cells, which may conveniently form a panel 5 on the upper face of the display unit.

The memory may contain a selection of standard messages, preferably stored in a separate read-only memory portion, such as:

PLEASE PASS

HELP - DRIVER ILL

HELP - CALL POLICE

BROKEN DOWN

In addition, graphical symbols, such as directional arrows, or other warning signs of a self-explanatory nature, may be included.

The user may cause any of these messages to be displayed, as appropriate, by entering the relevant code on the keypad. Alternatively he may enter any other desired message on the keypad and cause it to be displayed, or to be stored in memory for use on a future occasion.

The processor may be programmed so as to cause all, or selected portions, of the display to flash on and off so as to aid in attracting attention, or to cause the message displayed to traverse the screen repeatedly, thereby enabling a message to be displayed which is longer than the capacity of the screen.

Instead of the device being constructed as a portable unit as described above, it may be permanently secured in position and

wired into the electrical system of the car, the plug 4 then being dispensed with. The keypad may then be incorporated in, or attached to, the instrument panel.

In a simplified version the keypad is dispensed with, and a selection of messages is stored in a read-only memory, the required message being displayed by the operation of a selector switch.

CLAIMS

1. A display device comprising a dot-matrix LED display unit suitable for supporting within the rear windscreen of a motor vehicle, in combination with a data memory and data processing and character-generating means whereby the display device may be caused to display an illuminated message visible to passing vehicles.

2. A display device according to claim 1 including selection means whereby the display unit may be caused to display a selected one of a plurality of pre-recorded messages stored in the memory.

3. A display device according to claim 1 or claim 2 provided with a keypad whereby a message can be displayed and/or recorded in the memory.

4. A display device according to any preceding claim in which the data processor is arranged to generate one or more moving or flashing components in the displayed message.

5. A display device according to claim 4 in which the whole message is displayed in a continuously moving cyclic form.

6. A display device according to any preceding claim having power supply means including a re-chargeable battery.

7. A display device according to any preceding claim arranged to be powered from the cigar-lighter socket of a motor car.

8. A display device according to any of claims 1 to 6 permanently connected to the electrical circuits of a motor car.

9. A display device according to any of claims 1 to 6 including a solar panel as its power source.

Amendments to the claims
have been filed as follows

1. A display device comprising a dot-matrix LED display unit suitable for supporting within the rear windscreen of a motor vehicle, in combination with a data memory and data processing and character-generating means whereby the display device may be caused to display an illuminated message visible to passing vehicles, the device having power supply means including a re-chargeable battery arranged to be charged from the electrical circuits of the motor car.

2. A display device according to claim 1 in which the battery is arranged to be charged via the cigar-lighter socket of the motor car.

3. A display device according to claim 1 or claim 2 including selection means whereby the display unit may be caused to display a selected one of a plurality of pre-recorded messages stored in the memory.

4. A display device according to claim 1, 2 or 3 provided with a keypad whereby a message can be displayed and/or recorded in the memory.

5. A display device according to any preceding claim in which the data processor is arranged to generate one or more moving or flashing components in the displayed message.

6. A display device according to claim 5 in which the whole message is displayed in a continuously moving cyclic form.

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